CLAIMS

1. – 69. (CANCELED)

70. (NEW) A method of decomposition of waveforms in a cardiac signal comprising the steps of:

a) connecting electrodes to a patient whose heart is in Ventricular Fibrillation (VF);

b) deriving analogue input signals from the electrodes;

c) sampling said analogue input signals to derive the cardiac signal (EKG);

d) digitising said EKG signal;

e) employing wavelet transform analysis to process said digitised EKG signal;

f) extracting key features from the wavelet transform representation to predict the outcome of a specific interim therapeutic intervention during the Ventricular Fibrillation; and

g) guiding a resuscitation protocol based on the prediction, said guidance comprising the steps of;

h) using an analytical method to determine the likely outcome of a defibrillation shock; and

i) determining whether to provide at least one interim therapeutic intervention from a group comprising defibrillatory shock, CPR and pharmaceutical, before shocking.

71. (NEW) The method of claim 70, wherein the analytical method is characterised by learning vector quantisation (LVQ) methods, for example Kohonen Networks.

72. (NEW) The method of claim 70, where the analytical method is characterised by statistical, stochastic methods, for example Baysian Methods.

73. (NEW) The method of claim 70, where the analytical method is characterised by multi-layered neural network methods, for example Radial Basis Neural Networks.

74. (NEW) A method of decomposition of waveforms in a cardiac signal comprising the steps of:

a) connecting electrodes to a presenting patient with a heart in Ventricular Fibrilation (VF);

b) deriving analogue input signals from the electrodes;

c) sampling said analogue input signals to derive the cardiac signal (EKG);

d) digitising said EKG signal;

e) employing wavelet transform analysis to process said digitised EKG signal;

f) extracting key features from the wavelet transform representation; and

using an analytical method for determining the optimal time for shocking.

75. (NEW) The method of claim 74, wherein the analytical method is characterised by learning vector quantisation (LVQ) methods, for example Kohonen Networks.

76. (NEW) The method of claim 74, wherein the analytical method is characterised by statistical, stochastic methods, for example Baysian Methods.

77. (NEW) The method of claim 74, wherein the analytical method is characterised by multi-layered neural network methods, for example Radial Basis Neural Networks.

78. (CURRENTLY AMENDED) A method of decomposition of waveforms in a cardiac signal comprising the steps of:

a) connecting electrodes to a presenting patient whose heart is in Ventricular Fibrillation (VF) after the commencement of Cardio-Pulmonary Resuscitation (CPR);

b) deriving analogue input signals from the electrodes;

c) sampling the analogue input signals to derive the cardiac signal (EKG);

d) digitising said EKG signal;

e) employing wavelet transform analysis to process said digitised EKG signal; and

f) extracting key features from the wavelet transform representation to predict the outcome of a specific interim therapeutic intervention during the Ventricular Fibrillation.

79. (NEW) The method of claim 78, further comprising the steps of:

a) filtering said cardiac signal such that the CPR component is disassociated/separated from the heart signal;

b) producing an energy wavelet scalogram; and

c) temporally filtering the scalogram using ridge following techniques.

80. (NEW) The method of claim 79, wherein said ridge following techniques are characterised by modulus maxima techniques.

81. (NEW) The method of claim 79, further comprising the steps for guiding resuscitation protocol of:

a) using an analytical method for determining the likely outcome of a defibrillation shock; and

b) determining whether to provide at least one interim therapeutic intervention from a group comprising immediate defibrillatory shock and CPR, before shocking.

82. (NEW) The method of claim 81, wherein said analytical method is characterised by learning vector quantisation (LVQ) methods, for example Kohonen Networks.

83. (NEW) The method of claim 81, wherein said analytical method is characterised by statistical, stochastic methods, for example Baysian Methods.

84. (NEW) The method of claim 81, wherein said analytical method is characterised by multi-layered neural network methods, for example Radial Basis Neural Networks.

85. (NEW) A method of decomposition of waveforms in a cardiac signal comprising the steps of:

a) connecting electrodes to a presenting patient whose heart is in Atrial Fibrillation (AF);

b) deriving analogue signals from said electrodes;

c) sampling the analogue input signals to derive the cardiac signal (EKG);

d) digitising said EKG signal; ~~and~~

e) employing wavelet transform analysis to process said digitised EKG signal; and

f) extracting key features from the wavelet transform representation to predict the outcome of a specific interim therapeutic intervention during the Atrial Fibrillation.

86. (NEW) The method of claim 85, further comprising the step of filtering said cardiac signal such that the QRS complex and T components are disassociated/separated from the heart signal, comprising:

a) producing an energy wavelet scalogram; and

b) temporally filtering the scalogram using ridge following techniques.

87. (NEW) The method of claim 86, wherein said ridge following techniques are characterised by modulus maxima techniques.

88. (NEW) The method of claim 86, further comprising the step for guiding the course of therapeutic intervention taken, comprising:

a) using an analytical method for determining the likely outcome of a cardioversion shock; and

b) determining whether to at least one therapeutic intervention from a group comprising cardioversion shock, and drug therapy.

89. (NEW) The method of claim 88, wherein said analytical method is characterised by learning vector quantisation (LVQ) methods, for example Kohonen Networks.

90. (NEW) The method of claim 88, wherein said analytical method is characterised by statistical, stochastic methods, for example Baysian Methods.

91. (NEW) The method of claim 88, wherein said analytical method is characterised by multi-layered neural network methods, for example Radial Basis Neural Networks.